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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,936	08/09/2006	Masanori Tabata	4554-014	4514
23429 7590 06/30/2010 LOWE HAUPTMAN HAM & BERNER, LLP 1700 DIAGONAL ROAD SUITE 300 ALEXANDRIA, VA 22314				
EXAMINER				
STELLING, LUCAS A				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
06/30/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/588,936

Applicant(s)

TABATA ET AL.

Examiner

Lucas Stelling

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-20, 22-24 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) 14-18, 20 and 26-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)
Paper No(s)/Mail Date 4-1-10
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ ~~Notes of Informal Patent Application~~
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6-3-10 has been entered.

Election/Restrictions

2. Claims 14-18, 20, and 26-30 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1-23-09.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2002/0117392 to Noguchi et al. ("Noguchi").
5. As to claim 19, Noguchi teaches a water treatment apparatus comprising:

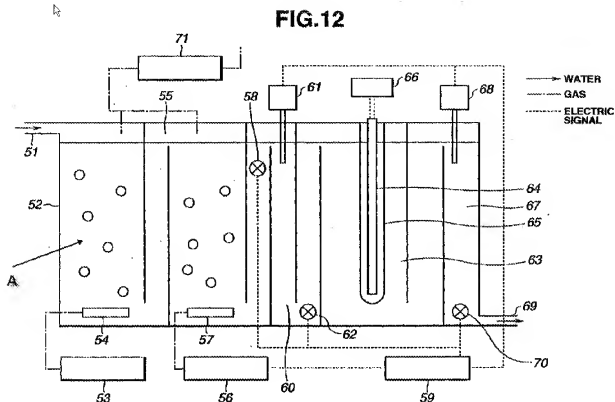
a treatment bath for treating the water (**See Noguchi Fig. 12, and edited Fig. 12 below, 'A' represents the treatment bath into which ozone is provided through 54 see also [0046]**);

an oxidizing reagent adding unit for adding an oxidizing reagent in the water treatment bath (**54 and see [0046]**);

an ultraviolet treatment unit for irradiating an ultraviolet ray (**64 and see [0046]**);
and

an acid treatment bath (**60**) having an acid adding unit for adding acid (**61**), provided on a downstream side of the wastewater treatment bath and on an upstream side of the ultraviolet treatment unit (**See Noguchi Fig. 12 and see edited Fig. 12 below**).

The examiner acknowledges that applicant has further claimed limitations directed to the pH of the water in the acid treatment bath. These limitations are directed to the material operated on by the apparatus and functional limitations of the apparatus and do not serve to further define the apparatus in terms of its structure. See MPEP 2114 and 2115. The apparatus of Noguchi is fully capable of performing the functions recited in the claims. Nevertheless, Noguchi contemplates a pH of not higher than 4 for the photocatalytic reaction in other embodiments (**See Noguchi [0036]**).



Claim Rejections - 35 USC § 103

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 22-24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Noguchi.

9. As to claims 22, Noguchi teaches the apparatus of claim 19, and these limitations of claims 22 are drawn to the functional limitations of an apparatus and the material operated on by the apparatus and do not serve to further patentably define the apparatus in terms of its structure. See MPEP 2114 and 2115. The treatment apparatus in Noguchi is fully capable of providing the amount of oxidizing agent in claims 22.

10. Nonetheless, Noguchi is silent as to the amount of ozone provided with respect to the COD of the liquid. But, the amount of ozone provided, and therefore the effective oxygen to COD ratio, is a result effective variable which drives the decomposition in the liquid. *Discovery of optimum value of result effective variable in known process is ordinarily within the skill in the art and would have been obvious, consult In re Boesch and Slaney (205 USPQ 215 (CCPA 1980)).*

11. As to claims 23, Noguchi teaches the apparatus of claim 19, and these limitations of claims 23 are drawn to the functional limitations of an apparatus and the material operated on by the apparatus and do not serve to further patentably define the

apparatus in terms of its structure. See MPEP 2114 and 2115. The treatment apparatus in Noguchi is fully capable of providing the amount of oxidizing agent in claims 23.

12. Nevertheless, Noguchi is silent as to the exact effective oxygen amount provided with respect to the COD of the liquid in the UV treatment unit. Noguchi provides for a deozoneur upstream of the UV treatment unit. However, Noguchi does not mention that the deozoneur eliminates all ozone (**See Noguchi [0046]**). Instead, Noguchi teaches that the sensor detects an ozone concentration, and determines whether ozone removal is sufficient (**See Noguchi [0046]**); which is interpreted to mean that the apparatus is capable of letting ozone pass to the UV treatment tank, thereby providing an ozone to COD ratio even if a substantial amount of ozone is removed in the deozoneur. Moreover, Noguchi teaches the benefit of providing ozone in a UV reaction chamber; namely that ozone is decomposed to hydroxyl radicals which further aid in removal of organic matters (**See Noguchi [0047]**). Therefore, a person having ordinary skill in the art at the time of invention would have found it obvious to allow some ozone to remain in the ozone treatment unit in Noguchi in order to provide for hydroxyl radicals in the UV treatment section, thereby making the device capable of an effective oxygen to COD ratio in the UV treatment unit. Furthermore, the amount of ozone provided, and therefore the effective oxygen to COD ratio, is a result effective variable controls the amount of hydroxyl radicals produced by UV treatment. *Discovery of optimum value of result effective variable in known process is ordinarily within the skill in the art and*

would have been obvious, consult *In re Boesch and Slaney* (205 USPQ 215 (CCPA 1980)).

13. As to claim 24, Noguchi teaches the apparatus of claim 19, and the limitations of claim 24 is drawn to the material operated on by the apparatus and does not serve to define the invention in terms of its structure. See MPEP 2115. The limitations of claim 24 are directed merely to applicant's intended use of the apparatus.

14. Notwithstanding, Noguchi does not specifically mention providing liquid into the treatment bath in the embodiment of Fig. 12 with a pH of 7-12. However, a Noguchi suggests treating liquid with a pH of 7 at a later paragraph (**See Noguchi [0057]**). Therefore a person having ordinary skill in the art would have found it obvious to provide a neutral liquid to be treated in Noguchi as the treatment of neutral liquids is specifically suggested with other embodiments, and Noguchi does not mention that the incoming water pH in the embodiment of Fig. 12 is particularly critical.

Response to Arguments

15. Applicant's arguments filed 6-3-10 have been fully considered but they are not persuasive.

16. Applicant's arguments with respect to claims 19, and 22-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-

3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Las 6-29-10

/Matthew O Savage/
Primary Examiner, Art Unit 1797